TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 29, 2013

Mr. Gary G. Miller, Remedial Project Manager
U.S. EPA, Region 6
Superfund Division (6SF-RA)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: *Draft Remedial Investigation Report*, dated December 2012
San Jacinto River Waste Pits Federal Superfund Site
Harris County, Texas

Dear Mr. Miller:

The Texas Commission on Environmental Quality (TCEQ) Remediation Division has completed review of the December 2012 Draft Remedial Investigation (RI) Report. The Draft document was prepared by Integral Consulting Inc. and Anchor QEA, LLC. On January 6, 2013 the TCEQ submitted comments on the Draft Baseline Human Health Risk Assessment (BHHRA). On January 16, 2013 the TCEQ participated in the phone conference with the U.S. Environmental protection Agency (USEPA) to discuss these comments. Due to the similarity of the human health risk assessment comments for these documents, the TCEQ is not including the January 6, 2013 comments in this letter. The TCEQ comments on the RI report from Vickie Reat and Charles Stone of Technical Program Support Team are presented as Attachments 1 and 2. Additional comments on the RI report are presented below.

1. Section 2, Investigation and Environmental Datasets, page 2-1, first paragraph. It was stated that "no historical chemistry data for soil, groundwater, or air from locations within USEPA's Preliminary Site Perimeter were found..." The statement is not correct. The historical chemistry data for soil and sediment are available from the USEPA and TCEQ Screening Site Assessment (September 2006) and the HRS Documentation Record (September 2007). Additional historical data for sediment and soil are available from the Texas Department of Transportation (Weston, 2006. Draft Field Activities Report for Sediment Sampling. San Jacinto River Bridge Dolphin Project IH-10 at the San Jacinto River).

2. Section 2.1, Summary of Investigation Conducted for the RI, Page 2-2, and first paragraph.
   The sentence –"For each medium, more than one sampling event has been conducted" is not accurate. For groundwater only one sampling event was conducted.

3. Section 2.1.1.6, TCRA Cap Porewater Assessment Sampling and Analysis Plan, first paragraph, last sentence.
   Please provide a reference to the study which was conducted to address uncertainties about the potential for transport of dioxins and furans detected in perched water within the waste in the impoundments north of I-10 into surface water.

4. Section 2.1.2, Site-Specific Data Collection, page 2-20, last sentence.
   Provide a reference to the particular section where the results of sampling conducted according to Sediment SAP Addenda 1 and 2 were presented.

5. Section 2.1.2.2, Tissue, page 2-22, last sentence.
   Please identify the particular section of the report where the results were presented.

6. Section 2.1.2.3, Soil, last bullet.
   Correct description of the groundwater monitoring wells location from "in the western cell of the northern impoundments" to – "the berms surrounding the northern impoundments".

7. Section 2.1.2.4.2, Groundwater Sampling South of I-10, page 2-27, second paragraph.
   Provide reference to the particular section of the report.

8. Section 2.1.2.5, Cap Porewater Quality Assessment Using SPMEs, last paragraph.
   See comment #7.

9. Section 2.4.1, Performance of the Baseline Risk Assessment, page 2-45, last paragraph, page 2-46, first paragraph.
   Provide additional discussion on a rationale to not include the data collected in 2005. What was the statistically significant difference exactly? Did the 2005 results show lower or higher numbers?

10. Section 5.2.2.5, Patterns and Trends in Groundwater Chemistry, page 5-19, first paragraph.
    During the oversight activities, the TCEQ observed a completely saturated condition of the sediment/waste in the Northern Impoundment. The physical appearance of the sediment/waste was more look like a "grayish silty muck". Please provide a reference how the hydraulic conductivity of the impoundment sediment/waste was measured.

11. Section 5.7.4.2, Groundwater.
This section basically discusses that groundwater samples obtained from within the waste at the Northern Impoundment contains dioxin and furan. Since the samples were not filtered there is no guarantee the congeners are "dissolved". However, it is concern enough to keep the groundwater-to-sediment/surface water exposure pathway open for consideration.

    The likelihood of actual pathway completion to pore water (sediment) or surface water is considered low because of the assumed low hydraulic conductivity of the waste.

    The assumption that the TCRA closes the GW-to-sediment/surface water pathway is physically implausible because the TCRA does not comprise a complete impermeable barrier between the waste and the sediment/surface water at their interface. Therefore, the CSM acknowledges a potential for pathway completion – but demonstration of this is impossible because the TCRA prevents investigation of the possibility.

    The absence of significant congener concentration in sample analyses of the top six inches of the TCRA "porewater" is interpreted to signify that there are no releases occurring now. However, the TCEQ commented on the flaws of the TCRA porewater study previously.

    It appears the pathway(s) is being effectively closed based on speculation rather than actual persuasive data-based conclusions. But the door appears to be closed regarding any further investigation of pathway(s) due to claims that no additional sampling is possible.

If you have any questions please contact Vickie Reat at 512-239-6873, Charles Stone at 512-239-5825 or myself at 512-239-6368.

Sincerely,

Ludmila Voskov, P.G., Project Manager
Superfund Section
Remediation Division
Texas Commission on Environmental Quality

LV/cw

Enclosures

cc: Vickie Reat, TCEQ
Chuck Stone, TCEQ
Stephen Ellis, TCEQ

Attachment #1

TCEQ Interoffice Memorandum

To: Ludmila Voskov, Project Manager, Superfund Section, Remediation Division

From: Vickie Reat, Technical Program Support Team, Division Support Section, Remediation Division

Date: January 25, 2013

Subject: Draft Remedial Investigation Report
San Jacinto River Waste Pits Superfund Site
Houston, Texas
Prepared by Integral Consulting Inc.
December 2012

I have reviewed the subject document and my comments are outlined in this memo.

1. 2.1.1.6 TCRA Cap Pore Water Assessment Sampling and Analysis Plan - TCEQ previously commented that information gathered from this sampling effort will not address the long-term effectiveness of the TCRA (time critical removal action) to prevent the release of dioxins and furans from the area within the 1966 perimeter. Only long-term monitoring will do this. We also stated that this monitoring activity will not address potential releases from the side slopes of the impoundment or releases resulting from erosional forces. The discussion states that this pore water study was intended to address uncertainties associated with the potential for transport of dioxins and furans detected in perched water within the waste in the impoundments north of I-10 into surface water. We believe this uncertainty still exists for the long term. We suggest that the text should acknowledge this uncertainty.

2. 2.4.1 Performance of the Baseline Risk Assessment - Regarding the comparison of the dioxin and furan concentrations in surface sediments collected in August 2005 and those collected in 2010, we suggest that the discussion indicate that the 2010 dioxin and furan concentrations were determined to be lower based on a variety of statistical analyses.

3. 4.2 Description of Background Datasets and 4.5 Comparisons to Background - The discussion appears to present the background dataset only in terms of toxicity equivalency factors for mammals (i.e., $TEQ_{DF,M}$). Similarly, the various statistical comparisons appear to present the COPC (chemical of potential concern) comparisons on a $TEQ_{DF,M}$ basis only. We suggest that the discussion and the statistical comparisons also present the background dataset in terms of toxicity equivalency factors for birds and fish or provide an acceptable rationale for limiting the evaluation in this manner.

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4. 4.3 Outlier Analysis - The discussion explains that the outlier analysis affects the calculation of exposure point concentrations for the baseline human health risk assessment. The discussion is silent on the potential impacts to the background analysis in the baseline ecological risk assessment. We suggest some additional explanation relative to the baseline ecological risk assessment, as appropriate.

5. 5.2.4 Tissue - Similar to previous comments, the data summaries are limited to toxicity equivalency factors for mammals only. We suggest that the discussion and the summary tables also present the tissue dataset in terms of toxicity equivalency factors for birds and fish or provide an acceptable rationale for limiting the evaluation in this manner.

6. 5.3.2 Results - Regarding the sampling objective of determining whether vertical gradients in concentrations of dioxins and furans in pore water of the TCRA armored cap exist, the draft text states that "these data indicate the absence of vertical concentration gradients of dissolved 2,3,7,8-TCDD or 2,3,7,8-TCDF in the pore water within the TCRA armored cap." There is additional text that states that "these results indicate the TCRA armored cap is effective in eliminating any release of dioxins and furans associated with waste materials within the northern impoundments, and the TCRA armored cap is also effective in reducing or eliminating the potential release of dissolved-phase dioxins and furans from the northern impoundments into the surface water of the river." The text should be modified to indicate that these results reflect conditions at the time of sampling and should not be conclusive that releases of dioxins and furans associated with waste materials will not occur after the armored cap has been in place for some time. It is possible that if a vertical gradient does exist, it would be more apparent after the large pore spaces are filled with sediment fines.

7. 5.5.2.5.1 Characterization of Risks to Benthic Invertebrates - In the last paragraph of this discussion, there is a statement that "concentrations of 2,3,7,8-TCDD in clam tissue from two of five samples directly adjacent to the upland sand separation area exceed a threshold of histological effects in individual female oysters." We suggest that the text be modified to state a threshold of "histological effects related to impaired reproduction and larval survival" or simply "histological effects related to impaired reproduction."

8. 5.5.2.5.5 Characterization of Risks to Reptiles - We do not disagree with this summary. However, we suggest that the summary acknowledge that the reptile risk assessment was a qualitative evaluation.

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9. 5.8 Protective Concentration Levels (PCLs) - We suggest modification to the first sentence of the second paragraph to remove the words, "or ecological" since the PCLs are derived for human health pathways only.

10. 7.0 Remedial Action Objectives (RAOs) - The discussion states that implementation of the TCRA has eliminated the associated secondary transport mechanisms resulting from erosion due to the river flowing over the wastes and due to storm-related sediment resuspension. The discussion continues that as a result of the TCRA, RAO 1 has been achieved for the northern impoundments. Although it was not discussed here, the TCRA was an important component of the BERA discussions since any potential baseline ecological risks were largely deemed immaterial as a result of the implementation of the TCRA. Potential ecological risks were evaluated for both pre and post TCRA conditions.

    This discussion does not mention the apparent erosion of the armor rock on the west side of the TCRA in July 2012 (see U.S. EPA August 8, 2012 Site Bulletin and U.S. EPA January 2013 Status Summary). According to the U.S. EPA January 2013 Status Summary, the repair work was performed beginning August 1 and completed August 3, 2012. We suggest that the discussion acknowledge this occurrence and the preceding rainfall event(s).

Appendix D
Draft Baseline Ecological Risk Assessment for the Peninsula South of I-10

11. For invertivorous birds (killdeer as measurement receptor), the lowest-observed-adverse-effects level (LOAEL)-based hazard quotients for lead and zinc were greater than one. For lead, the central tendency (i.e., based on mean concentrations) LOAEL-based hazard quotient was two, and the reasonable maximum (i.e., based on 95% UCL concentrations) LOAEL-based hazard quotient was eight. For zinc, the central tendency LOAEL-based hazard quotient was one, and the reasonable maximum LOAEL-based hazard quotient was three.

    The BERA conclusions state that baseline risks to individual terrestrial invertivorous birds represented by the killdeer from exposure to lead and zinc are present, and risks to terrestrial bird populations from exposures to lead and zinc may be present. The discussion also cautions that the risk management approaches regarding these metals should consider a number of uncertainties (e.g., exposure estimates, bioavailability, toxicity under field conditions relative to potential toxicity in the laboratory, and actual tissue concentrations of food items). Based on probabilistic analyses of exposure and risk, the BERA also states that the probability that exposure to these metals will exceed the respective LOAEL is 88% for lead, and

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68% for zinc. The uncertainties associated with these metals/exposure pathways are not unlike those typically outlined in any "desktop" ecological risk assessment where site-specific tissue data is not available. With this in mind, the spatial distribution of the elevated metals concentrations, site conditions, infrastructure, and maintenance activities (e.g., routine mowing) are also important risk management considerations and should be reflected in this discussion.

Attachment #2

Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

To: Ludmilla Voskov, P.G.
Remediation Division, Superfund Section **Date:** January 25, 2013

From: Charles D. Stone, P.G., P.E.
Remediation Division, Technical Support Section

Subject: Review: *Draft Remedial Investigation Report, San Jacinto River Waste Pits Superfund Site, Volumes I and II*; December 2012.

Per request, a technical review of the subject report was performed for the purpose of evaluating revisions to comments made previously on the following section topics.

Section 5.3.1 and Section 5.6.4 and Section 5.7.4.2, TCRA Cap Porewater Assessment

Figure 5-23 does not accurately reflect the grain-size distribution of the submerged TCRA Cap. Based on the TCRA construction specifications (Integral and Anchor, 2012) the submerged TCRA Cap comprises cobbles and boulders with no interstitial matrix. Rather, the Cap contains large-scale interstitial voids.

Water within the large-scale interstitial voids of the submerged TCRA Cap is San Jacinto River "surface water" that is chemically indistinguishable from "porewater." As such, the attempt to differentiate between the two waters is effectively obviated because of the overwhelming influence of the inundating surface water (TCEQ, 2012c).

Section 5.6.2 and Section 5.6.5, Summary of Fate and Transport Modeling Study

The lack of available San Jacinto River surface water elevation data sets at appropriate locations over applicable time frames, combined with actual water elevation measurements made during extreme drought conditions (with no-flow conditions at the Lake Houston Dam) results in a calibration of surface water elevation in the model domain that is considered to have high uncertainty. As such, simulation of low-frequency, high discharge flood events using the hydrodynamic model is considered to have low reliability in predicting the actual response of water level elevations within the model domain area (Sec C, TCEQ, 2012a, 2012b; USEPA, 2012).

Section 5.6.3, Sediment Transport Processes

The stated range of net sedimentation rates within the model domain remain based on an unaccepted evaluation of a poor data set from a depositional environment for which the method is inappropriate and with which the model results are contradicted (Sec H and Sec I, TCEQ, 2012a; TCEQ, 2012b).

Section 5.7.4.3 and Section 7.1, Surface Water / Source Control

The sediment flux from the northern impoundment to surface water (San Jacinto River) may be curtailed – so long as the TCRA cover remains intact. The design criteria for the TCRA construction included design specifications that the barrier "*... must be structurally sufficient to withstand forces sustained by the river including any future erosion and be structurally sound for a number of years ...*" and "*... must be structurally secure to withstand any potential future extreme weather events (i.e., Hurricane Ike of 2008) ...*" (USEPA, 2010).

However, the TCRA cap failed in July, 2012, in response to a modest erosion event caused by a less than 2-year return flood event during which waste sediment from the northern impoundment was directly exposed to surface waters of the San Jacinto River. This event indicates that sediment flux to surface water cannot yet be expected to have been eliminated by the TCRA until its design objective has been demonstrated to be achieved.

Section 6.1, History of the Peninsula South of I-10

Some additional site historical information may be incorporated into the existing narrative for the purpose of supplementing the aerial photo interpretation.

According to conclusions documented by TSDH (1966), the disposal practice for settled waste from Champion Paper had occurred for some time prior to 1966 (pg 1, TSDH, 1966). On September 13, 1965, McGinnes Industrial Maintenance Corporation took over the settled waste disposal from the previous operator (pg 1, TSDH, 1966). At the time McGinnes took over the disposal operations, one of the two ponds on the northern side of Highway 73 had "*... been filled ...*" (pg 2, TSDH, 1966). The "*... older site on the south side of the Highway ...*" was "*... used prior to McGinnes Corp. taking over the operation and appears to consist of a pond covering between 15 and 20 acres ...*" (pg 2, TSDH, 1966). The southern waste pond was filled and taken out of service by 1966 and the western waste pond was filled by 1966.

The figure that appears in TSDH (1966) shows the plans of three (3) Champion waste disposal ponds at the subject site. The extent of the southern waste pond, whose outline is coincident with the "approximate impoundment boundary." Liquid separating from the solid wastes (and rainwater) in the western disposal pond was decanted to the eastern pond via a drain pipe that connects them (pg 2, TSDH, 1966). The decanted liquid in the eastern pond had been pumped into barges and transported back to the Champion Paper plant by McGinnes (and previous operator) (pg 2, TSDH, 1966). At Champion Paper, the liquid was ponded and subsequently discharged to the San Jacinto River (pg 3, TSDH, 1966).

Champion Paper and McGinnes indicated that the return trip of decanted liquid (and rainwater) from the disposal ponds was not economical (pg 3, TSDH, 1966) and had inquired as to whether disposal pond liquids ("top water") could be discharged directly to the San Jacinto River from the ponds (pg 3, TSDH, 1966). In 1966, the depth of water in parts of the south pond was reported to range

between 3 to 5 feet (pg 3, TSDH, 1966). The figure in TSDH (1966) shows a drawing of the southern pond with the location of a proposed drain in the northeast corner of the pond. The figure also shows the proposed drainage path of the liquid discharging to the Old River and Ship Channel. The proposed northeast drain location appears to correspond with a low point in the southern pond where water accumulates (e.g., Figure B-2, Subject Report).

It was stated that drainage of the "top water" from the ponds "... *would allow the discharge of more wastes to the area* ..." (pg 3, TSDH, 1966). It was contemplated that McGinnes would apply for a permit to perform such discharges from the pond, to handle wastes from Champion and also to handle industrial wastes from "... *not from Champion* ..." (pg 4, TSDH, 1966).

References:

Integral and Anchor 2012 *Draft Sampling and Analysis Plan: TCRA Cap Porewater Assessment – San Jacinto River Waste Pits Superfund Site*, April 2012.

TCEQ 2012a Technical Review: *Draft Chemical Fate and Transport Modeling Study – San Jacinto River Waste Pits Superfund Site, February 2012*; April 1, 2012.

TCEQ 2012b Evaluation: *Agency Comments on Draft Report and Response to Comments*, in *Draft Final Chemical Fate and Transport Modeling Study, San Jacinto Waste Pits Superfund Site, Appendix J; July 2012*; August 9, 2012.

TCEQ 2012c Technical Review: *Draft Sampling and Analysis Plan: TCRA Cap Porewater Assessment – San Jacinto River Waste Pits Superfund Site*, April 2012.

TSDH 1966 *Investigation of Industrial Waste Disposal – Champion Paper, Inc.*, Inter-Office report, Texas State Department of Health, May 6, 1966.

USEPA 2010 Memorandum: *Request for a Time Critical Removal Action at the San Jacinto River Waste Pits Site, Harris County, Texas*, USEPA Region 6, Dallas, TX, April 2, 2010.

USEPA 2012 Comments: *Draft Chemical Fate and Transport Modeling Study Report San Jacinto River Waste Pits Superfund Site, Harris County, Texas*; Unilateral Administrative Order, CERCLA Docket No. 06-03-10; April 2012.